



FACTS

ABOUT THE SAVANNAH RIVER SITE

Savannah River National Laboratory

We put science to work™

The Savannah River National Laboratory (SRNL) is the nation's newest national laboratory, but its tradition of putting science to work in service to the nation goes back over 50 years.

The laboratory was established in 1951 to provide technology research and development support for the Atomic Energy Commission's new Savannah River Plant. Its researchers developed technological solutions for the many challenges of building and bringing into operation five nuclear production reactors and related facilities. Over the decades, the Savannah River Plant became the Department of Energy's Savannah River Site, and the Savannah River Laboratory (or the Savannah River Technology Center, as it was later called) developed into an internationally recognized laboratory with outstanding expertise in hydrogen technology, materials science, environmental research, robotics engineering, analytical chemistry, hazardous material stabilization, and technologies for non-proliferation and national security. On May 7, 2004, Secretary of Energy Spencer Abraham designated the laboratory the Savannah River National Laboratory, one of only 12 laboratories nationwide to carry the "national laboratory" designation.

SRNL serves DOE and the nation as an applied research and development laboratory. That means that its researchers put science to work to develop and deploy practical technology solutions to real-world challenges. To achieve the best possible solutions, the laboratory works with partners whose strengths complement SRNL's abilities, including universities, other national laboratories and commercial partners. SRNL also interacts with regional governments to support the promotion and development of an expanded technology-based economy.

About half of SRNL's work is funded by the Department of Energy – Savannah River. The rest is work on behalf of DOE (other than Savannah River); the National Nuclear Security Administration; other federal agencies including the Department of Homeland Security and the FBI; and some commercial work.

SRNL has approximately 870 employees, with a research staff of about 670, approximately 25 percent of whom have PhDs. These include chemists, physicists, biologists, math/computer scientists, and mechanical, chemical, electrical, metallurgical, environmental and nuclear engineers, who put science to work in the areas of:

- **Energy Security**
 - Hydrogen technology – Technologies needed to make the wide-spread use of hydrogen practical for powering our automobiles, homes and industry, including:
 - Advanced hydrogen storage technologies that are safe, lightweight and cost-effective
 - Clean methods for producing hydrogen, including production in a nuclear reactor
- **National and Homeland Security**
 - Tritium technology
 - Nuclear materials technology
 - Homeland security
 - Nuclear forensics
 - Monitoring and detection capabilities for nuclear nonproliferation

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- **Environmental and Chemical Process Technology**

- Cleanup technology
- Hazardous materials disposition, including technologies to safely store, stabilize, treat and permanently dispose of all types of waste, including low- and high-level radioactive waste

At the heart of SRNL's work are eight core competencies:

Hydrogen and tritium science and technology: SRNL maintains its proficiency in hydrogen technology in support of national defense, and has expanded hydrogen's potential as a future energy source.

Sensor development: SRNL scientists develop probes and sensors to measure or detect chemicals in the harsh environments common to the nuclear industry, as well as other environments such as industrial process streams, ground water and well water.

Materials science: SRNL materials scientists and engineers focus on ensuring the safety and reliability of components, processes and facilities.

Environmental science and technology: SRNL scientists and engineers apply their expertise in ecology, environmental restoration, biotechnology and atmospheric technologies to develop solutions for urgent national and global environmental issues.

Engineered systems: SRNL provides engineered systems – such as robotics, remote vision systems, etc. - supporting nuclear production and materials handling processes. These systems are essential to ensuring the highest levels of safety and the lowest risks to the environment.

Computational modeling: Computational modeling is a bridge between field operations and laboratory research. Working in “virtual systems” to study behaviors not easily manipulated in the natural world, SRNL engineers demonstrate the final effects of complex interactions among systems.

Chemical and radiochemical processing: SRNL's chemical and radiochemical processing skills focus on the design, development and efficient operation of industrial and radiological processes in which materials are transformed by chemical reaction or physical means.

Analytical chemistry: SRNL provides state-of-the-science analytical chemistry capabilities to support laboratory research programs, including the development of new and enhanced methods of analysis to meet the challenges of environmental restoration activities, nuclear materials processing, and radioactive waste characterization and disposition.

SRNL's facilities include traditional multi-functional laboratories, along with a high-sensitivity laboratory and high-level shielded cells for the safe performance of work with radioactive samples. Working in cooperation with Aiken County, SRNL now has new state-of-the-art bioremediation and waste immobilization laboratories at the Aiken County Technology Laboratory, located adjacent to the Savannah River Site at the county-owned Savannah River Research Campus.

The Research Campus is also home to Aiken County's new Center for Hydrogen Research, which broke ground Aug. 2, 2004. This new facility houses SRNL's unclassified work in hydrogen storage, separation, production and materials development, and also provides space for universities and other companies doing work in hydrogen technologies in an arrangement designed to foster collaboration.

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The WSRC Team: Westinghouse Savannah River Company LLC • Bechtel Savannah River, Inc. • BNFL Savannah River Corporation
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